IN THE CLAIMS

Please amend the claims as follows:

Claim 1 (Original): A method of correcting color of a color image obtained by an electronic camera, comprising the steps of:

determining, using a neural network, a correction to data representative of the color image based upon an estimated illuminant of the color image; and

applying the correction to the data representative of the color image, wherein the illuminant comprises multiple sources of illumination.

Claim 2 (Original): The method of claim 1, wherein the electronic camera captures at least one still image.

Claim 3 (Original): The method of claim 1, wherein the electronic camera captures a succession of moving images.

Claim 4 (Original): A method of correcting color of a color image obtained by an electronic camera, comprising the steps of:

determining, using a multilayer perceptron model, a correction to data representative of the color image based upon an estimated illuminant of the color image; and

applying the correction to the data representative of the color image, wherein the illuminant comprises multiple sources of illumination.

Claim 5 (Original): The method of claim 4, wherein the electronic camera captures at least one still image.

Claim 6 (Original): The method of claim 4, wherein the electronic camera captures a succession of moving images.

Claim 7 (Original): The method of claim 4, wherein the multilayer perceptron model is trained based upon a dogleg trust region implementation of a Levenberg- Marquardt type algorithm.

Claim 8 (Original): The method of claim 4, further comprising the step of:

outputting an output color space of the color corrected image as a space not normalized with chromaticity coordinates the sources of illumination.

Claim 9 (Original): The method of claim 4, further comprising the step of:

using training data of each neural network as a colorimetric value under a standard source of illumination.

Claim 10 (Original): A method of correcting color of a color image obtained by an electronic camera, comprising the steps of:

determining, using a coactive neuro-fuzzy inference system model, a correction to data representative of the color image based upon an estimated illuminant of the color image; and

applying the correction to the data representative of the color image, wherein the illuminant comprises multiple sources of illumination.

Claim 11 (Original): The method of claim 10, wherein the electronic camera captures at least one still image.

Claim 12 (Original): The method of claim 10, wherein the electronic camera captures a succession of moving images.

Claim 13 (Original): The method of claim 10, wherein an integrating unit comprised of fuzzy membership functions computes a weighted sum of outputs of local expert multilayer perceptrons based upon an on camera estimation of illumination at a time of color image capture.

Claim 14 (Original): The method of claim 13, further comprising the step of:

constructing fuzzy membership functions by applying a neural network nonlinear coordinate transformation to a white balance plane in order to characterize estimated illumination for the coactive neuro-fuzzy inference system model.

Claim 15 (Original): The method of claim 10, further comprising the step of:

training the coactive neuro-fuzzy inference system model by constructing fuzzy membership functions generated by applying a neural network nonlinear coordinate transformation to a white balance plane in order to characterize estimated illumination for the coactive neuro-fuzzy inference system model.

Claim 16 (Original): The method of claim 13, further comprising the step of:

training the coactive neuro-fuzzy inference system model by constructing fuzzy membership functions generated by applying a neural network nonlinear coordinate transformation to a white balance plane in order to characterize estimated illumination for the

coactive neuro-fuzzy inference system model, wherein all parameters of fuzzy membership functions and local expert multilayer perceptrons are updated simultaneously.

Claim 17 (Original): The method of claim 13, further comprising the step of:

training the coactive neuro-fuzzy inference system model by constructing fuzzy membership functions generated by applying a neural network nonlinear coordinate transformation to a white balance plane in order to characterize estimated illumination for the coactive neuro-fuzzy inference system model, wherein all parameters of fuzzy membership functions and local expert multilayer perceptrons are updated simultaneously in conjunction with a heuristic parameter updating rule.

Claim 18 (Original): The method of claim 13, 14, 15, 16 or 17, wherein at least two of the fuzzy membership functions overlap.

Claim 19 (Original): A method of correcting color of a color image obtained by an electronic camera, comprising the steps of:

determining, using a coactive neuro-fuzzy inference system with a switching unit, a correction to data representative of the color image based upon an estimated illuminant of the color image.

Claim 20 (Original): The method of claim 10, further comprising the steps of:

finding a color conversion inverse map using separate neural networks associated with respective representative sources of illumination; and

outputting an output color space of the color corrected image as a space not normalized with chromaticity coordinates the sources of illumination.

Claim 21 (Original): The method of claim 10, further comprising the steps of:

finding a color conversion inverse map using neural networks associated with respective representative sources of illumination; and

outputting an output color space of the color corrected image as a space not normalized with chromaticity coordinates the sources of illumination.

Claim 22 (Original): The method of claim 10, further comprising the steps of:

finding a color conversion inverse map using separate neural networks associated with respective representative sources of illumination; and

using training data of each neural network as a colorimetric value under a standard source of illumination.

Claim 23 (Original): The method of claim 10, further comprising the steps of:

finding a color conversion inverse map using neural networks associated with respective representative sources of illumination; and

using training data of each neural network as a colorimetric value under a standard source of illumination.

Claim 24 (Original): An apparatus for correcting color of a color image obtained by an electronic camera, comprising:

a neural network for determining a correction to data representative of the color image based upon an estimated illuminant of the color image and for applying the correction to the data representative of the color image, wherein the illuminant comprises multiple sources of illumination.

Claim 25 (Original): The apparatus of claim 24, wherein the electronic camera captures at least one still image.

Claim 26 (Original): The apparatus of claim 24, wherein the electronic camera captures a succession of moving images.

Claim 27 (Original): An apparatus for correcting color of a color image obtained by an electronic camera, comprising:

a multilayer perceptron model for determining a correction to data representative of the color image based upon an estimated illuminant of the color image, and for applying the correction to the data representative of the color image, wherein the illuminant comprises multiple sources of illumination.

Claim 28 (Original): The apparatus of claim 27, wherein the electronic camera captures at least one still image.

Claim 29 (Original): The apparatus of claim 27, wherein the electronic camera captures a succession of moving images.

Claim 30 (Original): The apparatus of claim 27, wherein the multilayer perceptron model is trained based upon a dogleg trust region implementation of a Levenberg- Marquardt type algorithm.

Claim 31 (Original): The apparatus of claim 27, wherein the multilayer perceptron model outputs an output color space of the color corrected image as a space not normalized with chromaticity coordinates the sources of illumination.

Claim 32 (Original): The apparatus of claim 27, wherein the multilayer perceptron model uses training data of each neural network as a colorimetric value under a standard source of illumination.

Claim 33 (Original): An apparatus for correcting color of a color image obtained by an electronic camera, comprising:

a coactive neuro-fuzzy inference system model for determining a correction to data representative of the color image based upon an estimated illuminant of the color image, and for applying the correction to the data representative of the color image, wherein the illuminant comprises multiple sources of illumination.

Claim 34 (Original): The apparatus of claim 33, wherein the electronic camera captures at least one still image.

Claim 35 (Original): The apparatus of claim 33, wherein the electronic camera captures a succession of moving images.

Claim 36 (Original): The apparatus of claim 33, wherein an integrating unit comprised of fuzzy membership functions computes a weighted sum of outputs of local expert multilayer perceptrons based upon an on-camera estimation of illumination at a time of color image capture.

Claim 37 (Original): The apparatus of claim 36, wherein fuzzy membership functions are constructed by applying a neural network nonlinear coordinate transformation to a white balance plane in order to characterize estimated illumination for the coactive neuro-fuzzy inference system model.

Claim 38 (Original): The apparatus of claim 33, wherein the coactive neuro-fuzzy inference system model is trained by constructing fuzzy membership functions generated by applying a neural network nonlinear coordinate transformation to a white balance plane in order to characterize estimated illumination for the coactive neuro-fuzzy inference system model.

Claim 39 (Original): The apparatus of claim 36, wherein the coactive neuro-fuzzy inference system model is trained by constructing fuzzy membership functions generated by applying a neural network nonlinear coordinate transformation to a white balance plane in order to characterize estimated illumination for the coactive neuro-fuzzy inference system model, wherein all parameters of fuzzy membership functions and local expert multilayer perceptrons are updated simultaneously.

Claim 40 (Original): The apparatus of claim 36, wherein the coactive neuro-fuzzy inference system model is trained by constructing fuzzy membership functions generated by applying a neural network nonlinear coordinate transformation to a white balance plane in order to characterize estimated illumination for the coactive neuro-fuzzy inference system model, wherein all parameters of fuzzy membership functions and local expert multilayer

perceptrons are updated simultaneously in conjunction with a heuristic parameter updating rule.

Claim 41 (Original): The apparatus of claim 36, 37, 38, 39 or 40, wherein at least two of the fuzzy membership functions overlap.

Claim 42 (Original): An apparatus for correcting color of a color image obtained by an electronic camera, comprising:

a coactive neuro-fuzzy inference system with a switching unit for determining a correction to data representative of the color image based upon an estimated illuminant of the color image.

Claim 43 (Original): The apparatus of claim 33, wherein coactive neuro-fuzzy inference system model finds a color conversion inverse map using separate neural networks associated with respective representative sources of illumination, and outputs an output color space of the color corrected image as a space not normalized with chromaticity coordinates the sources of illumination.

Claim 44 (Original): The apparatus of claim 33, wherein coactive neuro-fuzzy inference system model finds a color conversion inverse map using neural networks associated with respective representative sources of illumination, and outputs an output color space of the color corrected image as a space not normalized with chromaticity coordinates the sources of illumination.

Claim 45 (Original): The apparatus of claim 33, wherein coactive neuro-fuzzy inference system model finds a color conversion inverse map using separate neural networks associated with respective representative sources of illumination, and uses training data of each neural network as a colorimetric value under a standard source of illumination.

Claim 46 (Original): The apparatus of claim 33, wherein coactive neuro-fuzzy inference system model finds a color conversion inverse map using neural networks associated with respective representative sources of illumination, and uses training data of each neural network as a colorimetric value under a standard source of illumination.

Claim 47 (Currently Amended): A computer readable recording medium having recorded thereon a computer program for correcting color ~~corrected~~ data of a color image obtained by an electronic camera, the ~~recording medium being prepared by the steps of~~ computer program comprising instructions to:

~~determining~~ determine, using a neural network, a correction to data representative of the color image based upon an estimated illuminant of the color image;

~~applying~~ apply the correction to the data representative of the color image, wherein the illuminant comprises multiple sources of illumination; and

~~recording on the recording medium~~ record data representative of the corrected data.

Claim 48 (Currently Amended): The computer readable recording medium of Claim 47, wherein the electronic camera captures at least one still image.

Claim 49 (Currently Amended): The computer readable recording medium of claim 47, wherein the electronic camera captures a succession of moving images.

Claim 50 (Currently Amended): A computer readable recording medium having recorded thereon a computer readable program for correcting color ~~corrected~~ data of a color image obtained by an electronic camera, the ~~recording medium being prepared by the steps of~~ computer program comprising instruction to:

~~determining~~ determine, using a multilayer perceptron model, a correction to data representative of the color image based upon an estimated illuminant of the color image;

~~applying~~ apply the correction to the data representative of the color image, wherein the illuminant comprises multiple sources of illumination; and

~~recording on the recording medium~~ record data representative of the corrected data.

Claim 51 (Currently Amended): The computer readable recording medium of claim 50, wherein the electronic camera captures at least one still image.

Claim 52 (Currently Amended): The computer readable recording medium of claim 50, wherein the electronic camera captures a succession of moving images.

Claim 53 (Currently Amended): The computer readable recording medium of claim 50, wherein the multilayer perceptron model is trained based upon a dogleg trust region implementation of a Levenberg-Marquardt type algorithm.

Claim 54 (Currently Amended): The computer readable recording medium of claim [[54]] 50, further comprising ~~the step of~~ instructions to:

~~outputting~~ output an output color space of the color corrected image as a space not normalized with chromaticity coordinates the sources of illumination.

Claim 55 (Currently Amended): The computer readable recording medium of claim 50, further comprising ~~the step of~~ instructions to:

use ~~using~~ training data of each neural network as a colorimetric value under a standard source of illumination.

Claim 56 (Currently Amended): A computer readable recording medium having recorded thereon a computer readable program for correcting color ~~corrected~~ data of a color image obtained by an electronic camera, the computer program ~~recording medium being prepared by the steps of~~ comprising instructions to:

~~determining~~ determine, using a coactive neuro-fuzzy inference system model, a correction to data representative of the color image based upon an estimated illuminant of the color image;

~~applying~~ apply the correction to the data representative of the color image, wherein the illuminant comprises multiple sources of illumination; and

~~recording on the recording medium~~ record data representative of the corrected data.

Claim 57 (Currently Amended): The computer readable recording medium of claim 56, wherein the electronic camera captures at least one still image.

Claim 58 (Currently Amended): The computer readable recording medium of claim 56, wherein the electronic camera captures a succession of moving images.

Claim 59 (Currently Amended): The computer readable recording medium of claim 56, ~~wherein an~~ further comprising instructions to ~~integrating unit comprised of fuzzy~~

~~membership functions computes~~ compute a weighted sum of outputs of local expert multilayer perceptrons based upon an on-camera estimation of illumination at a time of color image capture using an integrating unit including fuzzy membership functions.

Claim 60 (Currently Amended): The computer readable recording medium of claim 59, further comprising ~~the step of~~ instructions to:

~~constructing~~ construct fuzzy membership functions by applying a neural network nonlinear coordinate transformation to a white balance plane in order to characterize estimated illumination for the coactive neuro-fuzzy inference system model.

Claim 61 (Currently Amended): The computer readable recording medium of claim 56, further comprising ~~the step of~~ instructions to:

~~training~~ train the coactive neuro-fuzzy inference system model by constructing fuzzy membership functions generated by applying a neural network nonlinear coordinate transformation to a white balance plane in order to characterize estimated illumination for the coactive neuro-fuzzy inference system model.

Claim 62 (Currently Amended): The computer readable recording medium of claim 59, further comprising ~~the step of~~ instructions to:

~~training~~ train the coactive neuro-fuzzy inference system model by constructing fuzzy membership functions generated by applying a neural network nonlinear coordinate transformation to a white balance plane in order to characterize estimated illumination for the coactive neuro-fuzzy inference system model, wherein all parameters of fuzzy membership functions and local expert multilayer perceptrons are updated simultaneously.

Claim 63 (Currently Amended): The computer readable recording medium of claim 59, further comprising ~~the step of~~ instructions to:

~~training~~ train the coactive neuro-fuzzy inference system model by constructing fuzzy membership functions generated by applying a neural network nonlinear coordinate transformation to a white balance plane in order to characterize estimated illumination for the coactive neuro-fuzzy inference system model, wherein all parameters of fuzzy membership functions and local expert multilayer perceptrons are updated simultaneously in conjunction with a heuristic parameter updating rule.

Claim 64 (Currently Amended): The computer readable recording medium of claim 59, 60, 61, 62 or 63, wherein at least two of the fuzzy membership functions overlap.

Claim 65 (Currently Amended): A computer readable recording medium having recorded thereon a computer readable program for correcting color ~~corrected~~ data of a color image obtained by an electronic camera, the computer program ~~recording medium being prepared by the steps of~~ comprising instructions to:

~~determining~~ determine, using a coactive neuro-fuzzy inference system with a switching unit, a correction to data representative of the color image based upon an estimated illuminant of the color image; and

~~recording~~ record on the recording medium data representative of the corrected data.

Claim 66 (Currently Amended): The computer readable recording medium of claim 56, further comprising ~~the step of~~ instructions to:

~~finding~~ find a color conversion inverse map using separate neural networks associated with respective representative sources of illumination; and

~~outputting~~ output an output color space of the color corrected image as a space not normalized with chromaticity coordinates the sources of illumination.

Claim 67 (Currently Amended): The computer readable recording medium of claim 56, further comprising ~~the step of~~ instructions to:

~~finding~~ find a color conversion inverse map using neural networks associated with respective representative sources of illumination; and

~~outputting~~ output an output color space of the color corrected image as a space not normalized with chromaticity coordinates the sources of illumination.

Claim 68 (Currently Amended): The computer readable recording medium of claim 56, further comprising ~~the step of~~ instructions to:

~~finding~~ find a color conversion inverse map using separate neural networks associated with respective representative sources of illumination; and

~~using~~ use training data of each neural network as a colorimetric value under a standard source of illumination.

Claim 69 (Currently Amended): The computer readable recording medium of claim 56, further comprising ~~the step of~~ instructions to:

~~finding~~ find a color conversion inverse map using neural networks associated with respective representative sources of illumination; and

~~using~~ use training data of each neural network as a colorimetric value under a standard source of illumination.

Claim 70 (Original): A method of transmitting color corrected data of a color image obtained by an electronic camera, comprising the steps of:

determining, using a neural network, a correction to data representative of the color image based upon an estimated illuminant of the color image;

applying the correction to the data representative of the color image, wherein the illuminant comprises multiple sources of illumination; and

transmitting data representative of the corrected data.

Claim 71 (Original): The method of claim 70, wherein the electronic camera captures at least one still image.

Claim 72 (Original): The method of claim 70, wherein the electronic camera captures a succession of moving images.

Claim 73 (Original): A method of transmitting color corrected data of a color image obtained by an electronic camera, comprising the steps of:

determining, using a multilayer perceptron model, a correction to data representative of the color image based upon an estimated illuminant of the color image;

applying the correction to the data representative of the color image, wherein the illuminant comprises multiple sources of illumination; and

transmitting data representative of the corrected data.

Claim 74 (Original): The method of claim 73, wherein the electronic camera captures at least one still image.

Claim 75 (Original): The method of claim 73, wherein the electronic camera captures a succession of moving images.

Claim 76 (Original): The method of claim 73, wherein the multilayer perceptron model is trained based upon a dogleg trust region implementation of a Levenberg-Marquardt type algorithm.

Claim 77 (Original): The method of claim 73, further comprising the step of: outputting an output color space of the color corrected image as a space not normalized with chromaticity coordinates the sources of illumination.

Claim 78 (Currently Amended): The method of claim [[79]] 73, further comprising the step of: using training data of each neural network as a colorimetric value under a standard source of illumination.

Claim 79 (Original): A method of transmitting color corrected data of a color image obtained by an electronic camera, comprising the steps of:

determining, using a coactive neuro-fuzzy inference system model, a correction to data representative of the color image based upon an estimated illuminant of the color image;

applying the correction to the data representative of the color image, wherein the illuminant comprises multiple sources of illumination; and

transmitting data representative of the corrected data.

Claim 80 (Original): The method of claim 79, wherein the electronic camera captures at least one still image.

Claim 81 (Original): The method of claim 79, wherein the electronic camera captures a succession of moving images.

Claim 82 (Original): The method of claim 79, wherein an integrating unit comprised of fuzzy membership functions computes a weighted sum of outputs of local expert multilayer perceptrons based upon an on camera estimation of illumination at a time of color image capture.

Claim 83 (Original): The method of claim 82, further comprising the step of: constructing fuzzy membership functions by applying a neural network nonlinear coordinate transformation to a white balance plane in order to characterize estimated illumination for the coactive neuro-fuzzy inference system model.

Claim 84 (Original): The method of claim 79, further comprising the step of:

training the coactive neuro-fuzzy inference system model by constructing fuzzy membership functions generated by applying a neural nonlinear coordinate transformation to a white balance plane in order to characterize estimated illumination for the coactive neuro-fuzzy inference system model.

Claim 85 (Original): The method of claim 82, further comprising the step of:

training the coactive neuro-fuzzy inference system model by constructing fuzzy membership functions generated by applying a neural network nonlinear coordinate transformation to a white balance plane in order to characterize estimated illumination for the

coactive neuro-fuzzy inference system model, wherein all parameters of fuzzy membership functions and local expert multilayer perceptrons are updated simultaneously.

Claim 86 (Original): The method of claim 82, further comprising the step of: training the coactive neuro-fuzzy inference system model by constructing fuzzy membership functions generated by applying a neural network nonlinear coordinate transformation to a white balance plane in order to characterize estimated illumination for the coactive neuro-fuzzy inference system model, wherein all parameters of fuzzy membership functions and local expert multilayer perceptrons are updated simultaneously in conjunction with a heuristic parameter updating rule.

Claim 87 (Original): The method of claim 82, 83, 84, 85 or 86 wherein at least two of the fuzzy membership functions overlap.

Claim 88 (Original): A method of transmitting color corrected data of a color image obtained by an electronic camera, comprising the steps of:

determining, using a coactive neuro-fuzzy inference system with a switching unit, a correction to data representative of the color image based upon an estimated illuminant of the color image; and

transmitting data representative of the corrected data.

Claim 89 (Original): The method of claim 79, further comprising the steps of:

finding a color conversion inverse map using separate neural networks associated with respective representative sources of illumination; and

outputting an output color space of the color corrected image as a space not normalized with chromaticity coordinates the sources of illumination.

Claim 90 (Original): The method of claim 79, further comprising the steps of:

finding a color conversion inverse map using neural networks associated with respective representative sources of illumination; and

outputting an output color space of the color corrected image as a space not normalized with chromaticity coordinates the sources of illumination.

Claim 91 (Original): The method of claim 79, further comprising the steps of:

finding a color conversion inverse map using separate neural networks associated with respective representative sources of illumination; and

using training data of each neural network as a colorimetric value under a standard source of illumination.

Claim 92 (Original): The method of claim 79, further comprising the steps of:

finding a color conversion inverse map using neural networks associated with respective representative sources of illumination; and

using training data of each neural network as a colorimetric value under a standard source of illumination.

Claim 93 (Original): The method of claim 1, 4 or 10, wherein the data representative of the color image includes information regarding the illuminant.

Claim 94 (Original): The apparatus of claim 24, 27 or 33, wherein the data representative of the color image includes information regarding the illuminant.

Claim 95 (Original): A method of recording image data obtained by an electronic camera, comprising the steps of:

capturing a color image and generating data representative of the image;

estimating an illuminant for the captured color image and generating data representative of the estimated illuminant; and

recording the data representative of the image with the data representative of the estimated illuminant.

Claim 96 (Original): A method of transmitting image data obtained by an electronic camera, comprising the steps of:

capturing a color image and generating data representative of the image;

estimating an illuminant for the captured color image and generating data representative of the estimated illuminant; and

transmitting the data representative of the image with the data representative of the estimated illuminant.